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Impact of Educational Video Film for Nurses Caring Elders Suffering From Pressure Ulcer about Applying Cutimed Sorbact Dressing On Wound Healing

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Abstract: Pressure ulcer is a serious and common health problem in critical care setting; it has been described as one of the most costly and physically debilitating complications in the 20th century. The prevalence of advanced pressure ulcer is high in older persons; about 70% occur in patients 65 years or older peaking in those between age 70 and 80 years. Most pressure ulcers are believed to be treated if the appropriate measures are implemented to maintain skin integrity by applying the cutimed sorbact dressing. **Objectives:** to determine the impact of an educational video film for nurses caring elders suffering from pressure ulcer about applying cutimed sorbact dressing on wound healing. **Materials and Method.** A quasi experimental design used in this study, the study carried in the intensive Care Units of the Specialized Medical Hospital, Emergency Hospital and General Mansoura Hospital in Dakhalia governorate, the study subjects included in this study are 76 elderly patients and 69 nurses. Three tools were used in this study namely; Structured interview schedule sheet, Pressure Ulcer Scale for Healing, Video Film about prevention and applying cutimed sorbact dressing. **Results:** There is improvement in wound healing of pressure ulcer after applying Cutimed Sorbact dressing compared to the usual dressing. Moreover, the nurses became more knowledgeable after the educational video film concerning caring of elderly suffering from pressure ulcer. **Conclusion and recommendation:** This study concluded that the elderly patients suffering from pressure ulcers when applying the Cutimed Sorbact dressing intervention faster wound healing and free from bacteria than those who receive usual dressing, moreover, the nurse's knowledge improved after displaying the educational video film program Also, it recommended using the cutimed dressing in treatment of pressure ulcer as a result of his fast effect on wound healing.

Keywords: Elderly, Pressure Ulcer, Cutimed Sorbact dressing.

INTRODUCTION

Pressure ulcer is a serious and common health problem in critical care setting; it has been distinguished as one of the most costly and physically debilitating complications within the 20 century. Pressure ulcer is that the third most disorder after cancer and cardiovascular diseases affecting all age groups, but mostly among the elderly, immobile, and those patients with severe acute illness or neurological deficits. It occurs in hospital and community settings as well ^(1, 2, and 3).

Pressure ulcer is commonly termed as bed-sore, decubitus ulcer or pressure sore and sometimes as pressure necrosis or ischemic ulcer ^(4, 5). The prevalence of advanced pressure ulcer is high in older persons; about 70% occur in patients of 65 years or older peaking in those between age 70 and 80 years. This fact is troublesome because the number of persons over 65 has recently increased over the years ^(6, 7). In Egypt (2013) study done by Mohamed, revealed that 29% of studied sample developed pressure ulcer; 15% for stage I and 14% for stage II ⁽⁸⁾.

Several changes occur throughout the skin with increasing age, epidermal turnover rates decrease by 30% to 50% by the age of 70, leading to rougher skin with decreased barrier function. This change plays a role in slowly healing of epidermal wounds making aging with also a serious risk factor for developing pressure ulceration ⁽⁹⁾.

Pressure ulcers cause substantial harm damage to older patients, reduce their performance status, and lead to severe infections. Hospital acquired pressure ulcers are frequently accompanied with long stays in a hospital or health care facility ^(10, 11). The prevention and treatment of pressure ulcers needs a cooperative effort and a comprehensive multidisciplinary plan because of its multi-factorial cause that includes: risk assessment, skin assessments, reduction of risk factors, and education of patient, family and staff ^(12, 13).

Most pressure ulcers treatable if the suitable measures are implemented to maintain skin integrity by applying the cutimed sorbact dressing ^(14, 15). Cutimed Sorbact is also a variety of primary wound contact that are developed for the treatment of infected wounds and fungal infections. They will be used on each type of wounds, from gently to extremely exuding and from contaminated and colonized to infected wounds. Unlike traditional antimicrobial dressings, they are doing not contain any chemicals or pharmacologically active substances and admit on a physical mode of action using a hydrophobic coating made from dialkylcarbamoylchloride (commonly known as DACC) to reduce the micro-organisms load in a wound ⁽¹⁶⁾.

Nurse plays a significant role in pressure ulcer prevention and management because of their direct involvement in key aspects of pressure ulcer prevention such as hands-on care, risk assessment, prevention of harm, ensuring comfort and providing environments to assist patients attain optimum

health⁽¹⁷⁾. Consider using cutimed sorbact dressing for older adults that promotes a warm, moist wound-healing environment to treat grade 2, 3 and 4 pressure ulcers⁽¹⁸⁾.

AIM OF THE STUDY

To determine the impact of educational video film for nurses caring elderly suffering from pressure ulcer about applying cutimed sorbact dressing on wound healing.

Research Hypotheses:

- 1- Elderly patients suffering from pressure ulcers, when applying the Cutimed Sorbact dressing intervention, may have not only bacteria-free wound but also faster wound healing than those who receive usual dressing,
- 2- Nurse's knowledge and practice may be improved after displaying the educational video film program.

Research Question:

What is the impact of educational video film for nurses caring elders suffering from pressure ulcer about applying cutimed sorbact dressing on wound healing?

Significance of the study:

Lack of knowledge regarding pressure ulcers can be expensive to health care settings and fatal to patients if not properly treated. The treatment of pressure ulceration can be very difficult for nursing staff. Lead to worsening wounds, increase cost, and death if wound healing is prolonged. To overcome pressure ulcer complication, nurses have to play an important role in prevention and management.

MATERIALS AND METHOD

MATERIALS

Design: Quasi-experimental research design was used in this study.

Setting: This study was conducted at the Intensive Care Units in three hospitals namely; Specialized Medical Hospital, General Mansoura Hospital and Emergency Hospital in Dakahlia Governorate.

Subjects:

Sample size calculation was done by Epi Info Statistical Calculator. The study subjects include 69 of the nurses working in the previous settings and accepted to participate in the study and 76 elderly patients diagnosed with pressure ulcers and admitted to the previous settings were included in this study. The subjects were alternatively divided into two equal groups; the first was the control group, and comprised of 38 elderly patients these received the routine hospital care. The second was study group and comprised of 38 elderly patients these were exposed to cutimed dressing intervention. The elderly patients are selected under the following criteria, age 60 years and above for elderly diagnosed with pressure ulcer (all stages); the criteria for nurses, age 20 years and above, both sexes and willing to participate in the study.

Tools: In order to collect the necessary data three tools were used:

Tool I: Socio-demographic Structure Interview Schedule.

It has developed by the researcher and it has consisted of two parts:

Part (1): Socio-demographic data for elderly patients and nurses:

1. **Socio-demographic data and clinical profile for elderly patients** which include age, sex, and marital status, and religion, level of education, income, living condition and residence area. Mobility and ability to comprehend and cooperate with care, history and cause of pressure ulcer.
2. **Socio-demographic data for nurses:** Nurse's age, Qualification, Years of experience, attending any training program about pressure ulcer.

Part (2): Checklist to assess the nurses' knowledge about pressure ulcer:

It was developed by the researcher based on the relevant literature and it includes questions about the following items^(19,20,21): definition of pressure ulcer, causes, assessment and classification, pressure ulcer stages and complication, nursing care for pressure ulcer and prevention.

Tool II: Pressure Ulcer Scale for Healing:

The Pressure Ulcer Scale for Healing (PUSH) was developed by the National Pressure Ulcer Advisory Panel (NPUAP, 1997) as a quick, reliable tool to observe the change in pressure ulcer status over time. The PUSH tool was designed to track pressure ulcer healing by monitoring wound parameters of length times width, exudates quantity and tissue type. Total scores on the three elements of the tool to derive a complete PUSH Score

- Length x width—scored zero to 10, based on the measurements obtained
- Exudates amount—scored zero (none) to 3 (heavy)
- Tissue type—scored zero (closed) to 4 (necrotic tissue)⁽²²⁾.

Tool III: - Educational Video Film about prevention and applying cutimed sorbact dressing: This video film was developed by the researcher based on review of current literature^(23, 24, 25, 26, 27, and 28).

METHOD

- Official approval for conducting the study was obtained from the responsible authorities.
- Permission to carry out the study was obtained from the responsible authorities of the three different setting Specialized Medical Hospital, Emergency Hospital and General Mansoura Hospital.
- Tool I (Interview schedule sheet), and Tool III (The Educational Video Film) were developed by the researcher after reviewing the relevant literature.
- Tool III (Pressure Ulcer Scale for Healing) was translated into Arabic by the researcher then tested for reliability by test-retest methodology. The reliability was assured by means of Cronbach's coefficient alpha. Pressure Ulcer Scale for healing has a reliability of 0.87.
- All study tools I, II, and III were tested for content validity by a jury of 7 experts in the related fields of gerontological nursing, medical-surgical nursing,

community health nursing, and geriatric medicine. The necessary modifications were done consequently.

- A pilot study carried out on 10 of elderly patients diagnosed with pressure ulcer and 10 nurses to evaluate the clarity and applicability of the tools, and accordingly the necessary modifications has done. The pilot subjects were excluded from the study sample.
- The proposed interventions (educational video film) were conducted to the nurses in fourth consecutive sessions/week in the intensive care units for 2 weeks. For first week/ the 3 sessions were theoretical, while in the second week/ practical session (Technique for using cutimed sorbact dressing). Each session lasted from thirty to forty five minutes.

Educational video film sessions for nurses at intensive care units were carried out in three sessions:

- **First session (nature of the disease): it included the** Definition of the pressure ulcer, Importance of the skin, and Normal physiological changes of skin for the elderly.
- **Second session** (Causes, risk factors and areas of PU).
- **Third session** (stages, complications, prevention and nursing care of PU).
- **Practical (fourth session) it included:**
 - ✚ Pre-assessment for the pressure ulcer was done to determine the ulcer stage.
 - ✚ The wound was cleaned with normal saline.
 - ✚ The green surface of the cutimed sorbact dressing was applied in a way that ensures direct contact with the wound surface for the effective binding of microorganisms.
 - ✚ For deep wounds, the ribbon gauze was applied inside the wound, and then the wound was covered with the cutimed sorbact dressing.
 - ✚ The frequency of dressing changes depended on the exudate level and the degree of wound contamination. Almost the dressing was changed day after day (every 2days).
 - ✚ At the end of these sessions the researchers gave a brief summary of the important points then they asked specific questions about the topic to make sure of the nurses understanding and reinforcement of important points were done.
- Teaching methods followed in the previous sessions included demonstration by the researchers and redemonstration by the nurses. Each nurse was asked to redemonstrate under the research supervision.
- Other teaching materials included illustrated picture, and card. The video film card developed by the researcher was distributed to each unit, 2 in each unit and flash drive containing the video was given to each nurse to help her review the given knowledge.
- Data collection was conducted during a period of 9 months, started from the first of September 2015 to the end of May 2016.
- The dressing was provided to the patients by the researcher. According to the ulcer size and stage the number of needed dressing and ribbon gauze was given.

Evaluation of the program:

- Two evaluations were conducted to the nurses after finishing the 2 weeks .For the theory, part the

evaluation was conducted by comparing answers on the pretest (beginning of displaying film) and posttest (end of 2weeks) using the study tool I part 2. An open discussion was carried out to determine whether the program had increased the participant's knowledge of pressure ulcers. Regarding the practical part ongoing evaluation was conducted for 3 weeks while changing the cutimed dressing for the older patient.

- After three weeks of applying the cutimed sorbact dressing, evaluation of the older patients was done in the Intensive Care Units at Specialized Medical Hospital, Mansoura University Hospital, and New Mansoura General Hospital by using the study tool III (PUSH).

Ethical considerations:

A written consent from the study subjects to participate within the study was obtained after explanation the study purpose. Privacy, confidentiality, anonymity and also the right to withdraw any time was assured.

Statistical analysis:

Data was analyzed using PC with statistical package for social science (SPSS) version 16. The difference was considered significant if $P \leq 0.05$. The following statistical measures were used, Descriptive statistics (Count and percentage: Used for describing and summarizing data (Arithmetic mean (X) and standard deviation (SD)), Minimum – Maximum and Median). They were used for non-parametric quantitative data. (Analytical statistics: (Pearson' s Chi square test (χ^2), Monte Carlo exact test and Fisher exact test (FET), Student t-test of significance, Paired sample t- test, Wilcoxon signed ranked Z test and Mann – Whitney test. It was used for comparison between groups (ANOVA test of significance, Spearman's correlation coefficient. Additionally, Graphs were done for data visualization and using SPSS and Microsoft.

RESULTS

Table (1) illustrates the distribution of the studied nurses according to their demographic data. It was observed that 60.9% of participants were ranged in age from 20 to 25 years, while 39.1% have more than 25 years old with mean age was 24.014 ± 3.664 . Most of them were holding bachelor and diploma degree in nursing with 50.7% and 43.5% respectively. Related to years of experience, 49.3% of participants had 5 to 9 years' experience, with 27.5% and 23.2% who have less than five years and above ten years' experience respectively with mean years of experience was 6.34 ± 3.52 . Finally, 81.2% of participants did not have a workshop for pressure ulcer with only 18.8% attended such workshops. **Table (2):** It appears that the mean scores for all knowledge dimensions for nurses were increased (improved) significantly after applying for the program, whereas the statistically significant difference between pre and post intervention (P-value less than 0.00). **Table (3):** This table revealed that significant negative correlations were noticed between the demographic data for nurses and the total knowledge and practice post intervention.

Table (4): Shows the socio – demographic characteristics of the study and control groups for elderly patients. It appears that the most of control and study group age ranged from 60-70 years, married, illiterate, from the rural region and

living in sibling condition have enough income. There are no significant differences between two groups in all parameters except social status.

Table (5) illustrates the ulcer history of the study and control group. There is no statistical significance differences were detected between the two groups (P=0.772). On the other hand, in the study and control groups, 42.1% and 44.7% respectively had ulcer more than ten days, about 39.5% of the study group and 36.8% of the control group had an ulcer in between 5-10 days, and 18.4% of both groups had ulcer between 1-4 days. No statistical significance differences were detected between the two groups (P=0.968). About the cause of pressure ulcer, it was shown that immobility was the most common causes of ulcer among case and control groups 73.7% and 89.5% respectively. No statistical significance differences were detected between the two groups (P=0.221).

Figure (1) shows the total mean score of PUSH tool between the study and control group for elderly patients

within nine days. There were no significance differences between the both group in the first four days (P= 0.325, 0.715, 0.125 and 0.096) alternatively. While, from day 5 to day 9 , it was found that there were significance differences between the two groups (P=0.050, 0.047, 0.043, 0.069 and 0.036). It was found that there was significance difference between the study group and the total mean score of PUSH tool (P=0.001). **Figure (2):** It was observed that there were significance differences between the study group and total score of ulcer length (P=0.002). **Figure(3) :** It was found that there were significance differences between the study group and the total score of the exudate amount (P=0.002). **Figure (4)** it was observed that there were significance differences between the study and control group from the third day till ninth day. Also, there was significance differences between the study group and total mean score of tissue type (P=0.006) with no significance differences between the control group and the tissue type (p= 0.053).

Table (1) Demographic characteristic of the nursing participants.

Item	Parameter	n=69	%
Age	20 -	42	60.9%
	25 +	27	39.1%
Mean ± SD	24.014±3.664		
Qualification	Nursing diploma	30	43.5%
	Technical Institute	4	5.8%
	Bachelor degree	35	50.7%
Years of experience	Less than five years	19	27.5%
	5 -9	34	49.3%
	10+	16	23.2%
Mean ± SD	6.34±3.52		
Workshop for pressure ulcer	Yes	13	18.8%
	No	56	81.2%

Table (2) Mean scores of nurses about pressure ulcer knowledge and practice of the study group before and after the program (n =69).

Knowledge Dimension	Phase		'P
	Before intervention	After intervention	
	Mean±SD	Mean±SD	
Bed sores definition	4.58±1.51	7.51±.68	0.001*
Prevention method (Practical part).	21.00±3.51	30.38±2.29	0.005*
Pressure ulcer Knowledge	25.58±4.23	37.88±2.59	0.001*

tp: Paired t-test\
* P < 0.05 (significant)

Table (3) relation between the nurses demographic data and total score of the knowledge and practice after the session (n =69).

Demographic data		Knowledge after intervention				MCP
		Inadequate		Adequate		
		No	%	No	%	
Age	20 -	15	33.71%	27	64.28%	0.306
	25+	5	18.5%	22	81.5%	
Qualification	Nursing diploma	10	33.3%	20	66.7%	0.412
	Nursing Technical	2	50.0%	2	50.0%	
	Bachelor	8	22.9%	27	77.1%	
years of experience	< 5 years	9	47.4%	10	52.6%	0.210
	5-	10	21.7%	36	78.26 %	
	10+	1	25.0%	3	75.0%	
Workshop for bed sores	Yes	2	15.4%	11	84.6%	0.230
	No	18	32.1%	38	67.9%	

Table (4) Socio-demographic characteristics of the study and control groups of elderly patients.

Parameter	Study group		Control group		Test of significance
	N= (38)	%	N= (38)	%	
Age (in years)					
60-69	24	63.2%	18	47.4%	
70-79	9	23.7%	15	39.5%	
80+	5	13.2%	5	13.2%	
Mean ± SD	67.368±8.075		68.89±7.377		t=0.308
Sex					
Male	16	42.1%	20	52.6%	$\chi^2=0.358$
Female	22	57.9%	18	47.4%	
Social status					
Married	28	84.2%	20	52.6%	$\chi^2=0.041^*$
Widow	10	26.3%	18	47.4%	
Educational level					
Illiterate	22	57.9%	24	63.2%	$\chi^2=0.778$
Read & write	7	18.4%	8	21.1%	
Primary	4	10.5%	4	10.5%	
Preparatory	1	2.6%	1	2.6%	
Secondary	2	5.3%	0	0.0%	
University	2	5.3%	1	2.6%	
Residence					
Rural	30	78.9%	25	65.8%	$\chi^2=0.200$
Urban	8	21.1%	13	34.2%	
Living condition					
Alone	4	10.5%	4	10.5%	$\chi^2=0.620$
Family	9	23.7%	9	23.7%	
Sibling	20	52.6%	15	39.5%	
Relatives	5	13.1%	10	26.3%	
Income					
Enough	19	50.0%	21	55.3%	$\chi^2=0.646$
Not enough	19	50.0%	17	44.7%	

MCP: Mont Carlo exact probability

* P < 0.05 (significant)

Student t-test

Table (5) History and causes of ulcer among elderly patients in the study and control groups.

Items	Study group		Control group		MCP
	N= (38)	%	N= (38)	%	
Ulcer history					
New	24	63.2%	21	55.3%	0.772
Repeated	7	18.4%	9	23.7%	
Chronic	7	18.4%	8	21.1%	
Number of days					
1-4	7	18.4%	7	18.4%	0.968
5-10	15	39.5%	14	36.8%	
>10	16	42.1%	17	44.7%	
Ulcer cause					
Surgery	3	7.9%	0	0.0%	0.221
Injury	7	18.4%	4	10.5%	
Immobility	28	73.7%	34	89.5%	

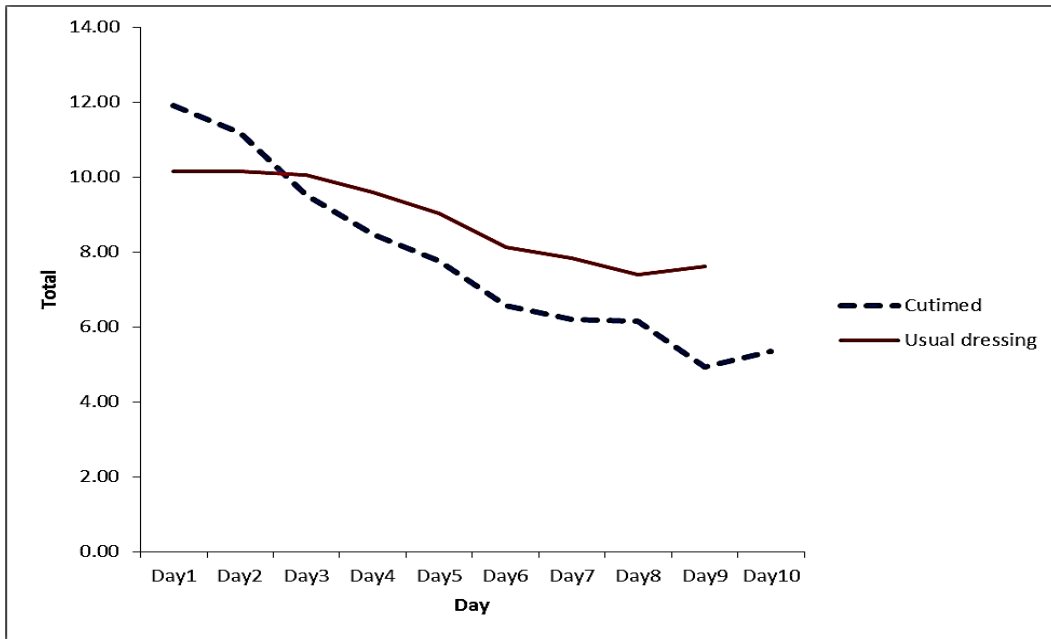


Figure (1) comparison between cutimed and usual dressing procedures by PUSH tool for elderly patients.

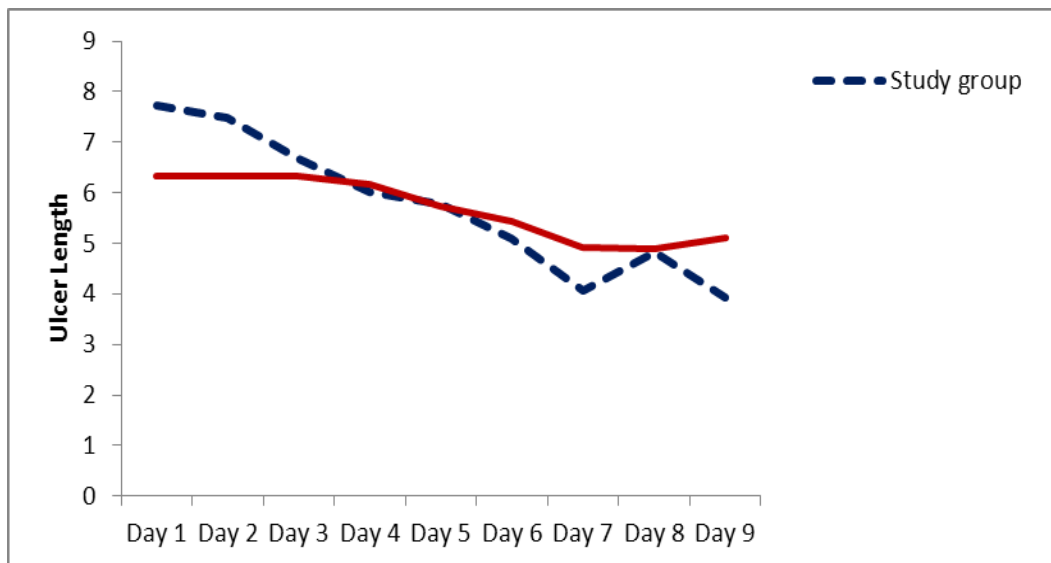


Figure (2) Comparison between the study and control group for elderly patients about ulcer length.

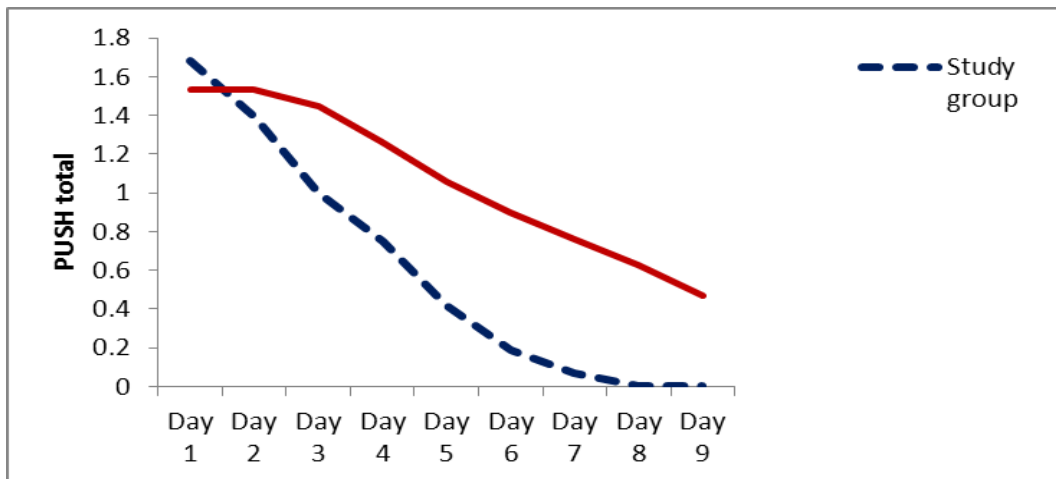


Figure (3) Comparison between the study and control group for elderly patients about exudate amount.

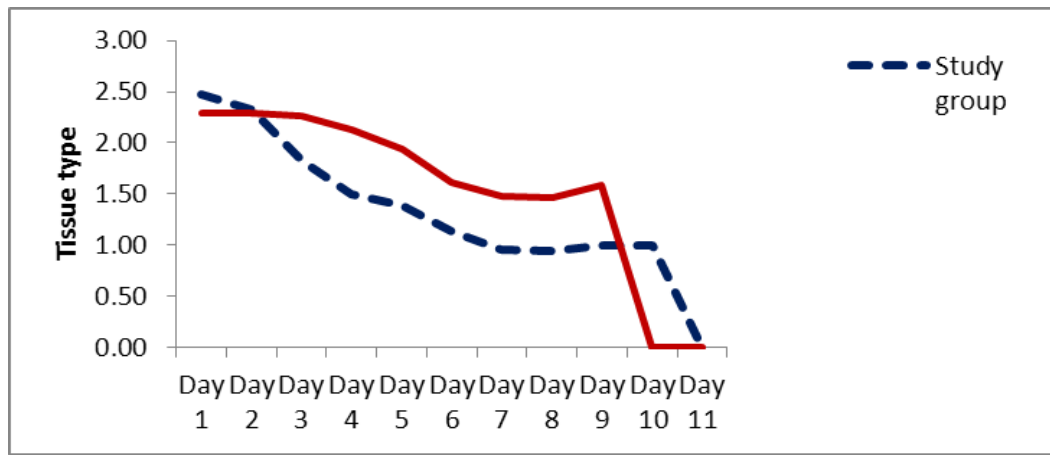


Figure (4) Comparison between the study and control group for elderly patients about tissue type.

DISCUSSION

Pressure ulcers can affect patients in every healthcare setting and it occurs in all age groups especially in elderly patients. Pressure ulceration represent a major problem for affected patients and for the nurses who take care of these patients as well⁽²⁹⁾.

According to demographic characteristic of the nursing participant in the present study, it represents that the majority of the nurses' age ranges between 20 to 25 years, holding bachelor degree, with 5 to 9 years of experience (**table 1**). These findings consistent with study done in Egypt by **Mohamed and weheida (2015)**⁽³⁰⁾ who stated that nurses' age was less than thirty years and therefore the majority of nurses' expertise less than 10 years, it also agreed with **El-sayed et al (2014)**⁽³¹⁾ in Egypt who stated that nurses' age mostly ranged from 20 to 25 years with a mean duration of experience of 25.4 ± 11.6 months. It also represent that more than 80% of nurses didn't attend any workshop regarding pressure ulcer (table 1). The study shows that there are negative correlation between the knowledge and demographic data of the nurses (age-experience). Similarity to **study in Germany by Hulsenboom, Bouns, and Halfens (2007)**⁽³²⁾ stressed that age, gender and skill had no influence on elements of PU care.

The result of the current study reveals that the knowledge among nurses regarding identification of risk factors of pressure ulcer, management and preventive measures for pressure ulcer are moderate level (**Table2**). Similarly to the study **in Germany by Meesterberends et al (2013)**⁽³³⁾, who found that the knowledge among nurses employed in Dutch hospitals about the usefulness of preventive measures is moderate, another study done in Bulgaria by **Beeckman et al (2010)**⁽³⁴⁾ found inadequate knowledge on prevention of PU, though knowledge was not correlated with application of preventive measures attitude between nursing records of the skin condition with actual skin examination in relation to PU. In the Arab world, **Abou-Elenin & Zaghoul (2011)**⁽³⁵⁾, in Egypt reported that 70% of nurses scored useful measures in PU care and 66% of them scored non-useful measures were in use in PU care.

A study in Turkey by Tweed and Tweed (2008)⁽³⁶⁾ investigated knowledge level of intensive care unit nurses

regarding pressure ulceration and therefore the impact of the education program on the level of knowledge and found that nurses' level of knowledge was good before receiving education. These variation between the studies could be caused by the differences in the countries wherever the studies were conducted, differences in the clinics where nurses were working, variations within the scales used for evaluating knowledge level, and differences in the threshold score defining knowledge level.

The present study reveals that the nurses' knowledge regarding pressure ulcer was increased significantly after applying for the program, whereas there are the statistically significant differences between the conditions before and after intervention associated with nurses. It may be attributed to the effect of program and practices that lead to an increase in the knowledge of the practitioners during the program period since the professionals take many sessions that contribute for practicing experience. It agrees with **paquay et al. (2010)**⁽³⁷⁾ who found that nurse's adherence to PU guidelines was significantly improved after implementing of an educational program. This is also supported by the work of **Smith & Waugh et al (2009)**⁽³⁸⁾, who used descriptive study among 435 registered nurses. The pieper pressure ulcer test was used to assess the nurse's knowledge, found the importance of this study is nurses' knowledge were significantly higher once exposed to instructional material.

This study found that most of control and study group age ranged from 60-70 years, married, illiterate, from the rural region and living in sibling condition have enough income. There are no significant differences between two groups in all parameters except social status. The study results agree with the study **in USA by Russo, Steiner, and Spector (2008)**⁽³⁹⁾ that found when compared to stays for all other conditions, adult patients hospitalized with pressure ulcers are older. In hospitals, patients with pressure ulcers had a mean age of 65.3 years. Similarly to the study **in brazil by Borghardt et al (2016)**⁽⁴⁰⁾ who found that the incidence of pressure ulcers among critically ill patients in this study was 22%, with length of stay, type of hospitalization, The age variable was not statistically significant in this investigation; however, a median of advanced age (60 years) was observed, especially in the group of patients with PU, in patients older than 60 years, according to **Sayar et al (2009)**⁽⁴¹⁾ and **Cox (2011)**⁽⁴²⁾.

In addition study done in Ireland by Moore and Cowman (2011)⁽⁴³⁾, reveals that Fifty-six percent of the pressure ulcers occurred in participants who were in the 80–89 age groups. Older individuals are statistically more likely to develop pressure ulcers compared with their younger counterparts.

According to ulcer history and causes of ulcer among study and control group of elderly patients, the majority of these patients have new ulcer history with more than ten days of ulcer, the reasons for this ulcer are immobility, with no statistically significant differences between control and study group (Table 5). This study agrees with study done in UK by Mandal (2015)⁽⁴⁴⁾ who found that the risk of pressure ulcer is increased in the following individuals: individuals who cannot move by themselves are at the higher risk of PU, people who have the damaged nerves and have not the ability to feel the pain of affected area, people who have injuries like fracture of bone particularly hip bone, Therefore the most cases of pressure lesions are varied (surgery, injury and immobility) in this study the most causes of ulcer in control and study group are immobility, and therefore the least cause is surgery.

In this study, cutimed dressing was used for treatment of pressure ulcer for the case group. It was applying day after day for 3 weeks and assessment was done using PUSH tool. It was observed that the wound was free from infection and faster healing was found compared to control group. These results agreed with De Jager *et al*, (2011)⁽⁴⁵⁾ in USA, who used the cutimed sorbact dressing for treatment of infected pressure ulceration on the knee, the wound showed signs of infection and was nearly 100% covered with slough, wound edges were red, swollen and curling and no granulation tissue was visible. By the ninth dressing changes cutimed sorbact Hydroactive B was no longer needed. The infection was observably gone & healing was progressing systematically.

To explore pressure ulcer length progress throughout the treatment period, the results showed that treatment progress for cutimed dressing more efficient for healing wound for pressure ulcer patients (figure 2). It agrees with study done by Robert ,(2012)⁽⁴⁶⁾ for treatment of chronic blood vessels insufficiency, complicated by venous insufficiency and reflux disease with cutimed sorbact, it absolutely was noticed that when treatment with cutimed sorbact was initiated, the wound volume has decreased and noted improved within the wound bed with healthy red granulation tissue at every weekly visit. The wound healed within 40days.

Regarding the exudate quantity from the wound side of the study and control group, it had been found that there have been significance differences between the case and control group from the third day till ninth day (Figure 3). These results refer to the cutimed dressing has shown excellent results in the control of the bacterial load, even better than those obtained with the applying the standard dressing, particularly within the magement ulceration for aged patients so that cutimed dressing has a greater decrease in pain. The results in agreement with the study done by Rupert, (2012)⁽⁴⁷⁾ to check the micro-organisms binding

dressing (cutimed sorbact) for treating wound healing by second intention whereas additionally effectively managing bio burden& infection. It was observed that therapy is great at absorbing exudates, reducing vasculature edema around the wound, providing thermal insulation and promoting granulation of healthy tissues. When combined with cutimed sorbact dressing. Not only is a protective contact layer provided for the wound, but the overall bacterial load is reduced, helping to modify those risk factors and achieve closed wound. Probst *et al*, (2012)⁽⁴⁸⁾ showed that In-vitro testing and studies using a simulated moist wound environment have demonstrated that the utilization of a hydrophobic dressing Cutimed Sorbact can reduce microbial load in a wound. The Cutimed Sorbact dressing demonstrated a binding action to common wound pathogens, including Staphylococcus aureus, Pseudomonas aeruginosa and Candida albicans and was found to be most effective in wounds with moderate to high levels of exudate.

The present study found that there were significance differences between the case and control group from the third day till ninth day in tissue type. Also, the granulation tissue was observed faster in cutimed dressing group (Figure 4). It agrees with study done by Lang, (2008)⁽⁴⁹⁾ to treat decubitus ulcer over greater trochanter, it was observed in day 11 almost infection-free, already granulating wound conditions are observed and, in day 14 Close-up of the bulging granulation tissue was found. In study done by Suzuki, (2011)⁽⁵⁰⁾ for treatment of severe burn wound using unique bacteria-binding dressing with a fatty acid contact layer. Despite these patients multiple co-morbidities the burn wound was successfully treated in 8 weeks without any incident of wound infection.

CONCLUSION

This study concluded that the implementation of educational video film is highly effective in improving knowledge and practice of nurses in critical care units. On the other hand wound healing for all stages of pressure ulcer were fast when using the cutimed sorbact dressing.

RECOMMENDATION

Based on the findings of the current study, it is recommended that:

- In- service training, nurses and health care providers should update their knowledge about pressure ulcer and its management.
- Hospitals are recommended to use the cutimed sorbact dressing for the management of all types of wound , especially for pressure ulcer as it has faster effect on wound healing.
- Further studies with a large number of elderly patients are needed to confirm these findings.

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